United States Department of Agriculture

Animal and Plant Health Inspection Service

National Wildlife Research Center

Developing New Capture Systems and Nonlethal Solutions for Managing Predators

Contact Information:
Dr. John Shivik, Wildlife Services Research Wildlife Biologist
Predator Ecology Field Station
Utah State University
Logan, UT 84322-5295
Phone: (435) 797-1348 FAX: (435) 797-0288
E-mail: john.shivik@aphis.usda.gov
Web site: www.aphis.usda.gov/ws/nwrc

National Wildlife Research Center Scientists Explore Innovative Ways to Protect Livestock from Predators

Wildlife Services' (WS) National Wildlife Research Center (NWRC) is the only Federal research facility devoted exclusively to resolving conflicts between people and wildlife through the development of effective, selective, and acceptable methods, tools, and techniques.

The need for acceptable and effective predator management tools is imperative in order to reduce livestock losses and protect public safety. Livestock predation costs producers millions of dollars each year, and incidents of predator attacks that injure or even kill people are becoming more and more frequent. Concerns for public health and safety, as well as animal welfare, have pressured wildlife managers to seek immediate solutions when predators cause conflicts. NWRC's research is focused on finding alternative nonlethal tools and techniques to prevent predatory behavior through the use of disruptive (frightening) and aversive (behaviorally conditioning) stimuli. In addition, NWRC researchers are also developing improved methods for capturing and monitoring predators.

Groups Affected by This Problem:

- Livestock producers
- Private citizens

Major Research Accomplishments:

- WS developed the predator-activated Electronic Guard frightening device for reducing livestock losses.
- WS designed, fabricated, and evaluated unique electronic training collars and surveillance technology to prevent carnivore predation on livestock.
- WS instigated the development of real-time, satellite-driven monitoring prototypes for wildlife and capture devices.

Applying Science and Expertise to Wildlife Challenges

Capture Devices—Capture technology has been largely reliant on tools and materials that were developed hundreds of years ago. Although effective, some of these capture methods have raised concerns about animal welfare. In response, NWRC scientists have developed and tested new and alternative capture devices and restraining methods that minimize injury to captured animals. Behavioral research is also underway to study visual, mechanical, and odor cue attractants that will change capture technology.

Frightening Devices—Research is being conducted to develop frightening (lights and sirens) devices to keep predators away from areas containing livestock. Scientists at NWRC are responsible for the development and use of a radio-activated disruptive stimulus device or "wolf alarm" that is an extremely important nonlethal tool for producers trying to manage wolf predation in Idaho. In addition, predator-activated conditioning collars, much like those used to train dogs, have been field tested on wolves in an effort to prevent livestock-attack behaviors.

Monitoring Predators—Radio-telemetry and satellite technology provide ways of locating specific predators. The ability to identify and locate individual predators is an essential tool for wildlife managers. NWRC is developing and evaluating auto-attaching radio collars that can remotely radio-tag large carnivores to provide selective management options. In addition, NWRC scientists are using state-of-the-art technology to develop real-time satellite collars for large predators and instant-messaging capture devices that minimize the amount of time animals spend in cages after they have been caught.

Live-Capture Cages—Because the use of currently available capture technology is likely to be restricted even further, NWRC is researching new capture methods. For example, rather than relying on gripping devices, scientists are developing designs for advanced holding cages to restrain predators. These designs will be used to develop an efficient live-capture cage for coyotes.

Selected Publications:

- Shivik, J.A., and K.S. Gruver. 2002. Animal attendance at coyote trap sites in Texas. *Wildlife Society Bulletin* 30(2):502-507.
- Bangs, E. and J.A. Shivik. 2001. Wolf conflict with livestock in the northwestern United States. *Carnivore Damage Prevention News* 3:2-5.
- Mason, J.R., J.A. Shivik, and M.W. Fall. 2001. Chemical repellents and other aversive strategies in predation management. *Endangered Species Update* 18:175-181.
- Shivik, J.A., K.S. Gruver, and T.J. DeLiberto. 2000. Preliminary Evaluation of New Cable Restraints to Capture Coyotes. *Wildlife Society Bulletin* 28:606-613.
- Shivik, J.A. and E.M. Gese. 2000. Territorial significance of home range estimators for coyotes. *Wildlife Society Bulletin* 28:940-946.